

REMARKS

No claims have been added, cancelled, or amended. Hence, Claims 1-6, 8-11, 16-26, 31, and 33 are pending in this application.

I. SUMMARY OF THE REJECTIONS

Claims 1, 3, 5-9, 11, 16-18, 20-24, 26, 31, and 33 have been rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over U.S. Patent Number 5,606,693 issued to Nilsen et al. ("*Nilsen*") in view of "The ServOS Kernal" written by Stefan Schliepfer ("*Schliepfer*").

Claims 4 and 19 have been rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over *Nilsen* in view of *Schliepfer* in view of U.S. Patent Number 5,627,994 issued to Levy et al. ("*Levy*").

The rejections are respectfully traversed.

II. REJECTIONS BASED ON THE CITED ART

A. CLAIM 1

Claim 1 recites:

A **database appliance**, comprising:

a **database server**;

a **special purpose operating system** having a set of components that include some, but not all, components of a general purpose operating system, whose configuration is dictated based on a said set of services required by the database server; and

a **self-configuration module** that is capable of performing the steps of:
detecting an environment in which the database appliance is being used; and
configuring the database appliance based upon the detected environment
(emphasis added).

1. *The combination of Nilsen and Schliepfer fails to teach or suggest the database appliance of Claim 1*

It is respectfully submitted that the combination of *Nilsen* and *Schliepfer* fails to teach or suggest the **database appliance** of Claim 1. Claim 1 recites a **single database appliance** that comprises **three** elements: a database server, a special purpose operating system, and a self-configuration module. The Final Office Action equates a database server of *Nilsen* (e.g. database server 120) with the database server of Claim 1. The Final Office Action also equates the special purpose OS kernel of *Schliepfer* with the special purpose operating system of Claim 1. The Final Office Action further equates the central configuration controllers 132 and 134 of

Nilsen with the self-configuration module of Claim 1. Even if *Nilsen* and *Schleipfer* disclose each of these elements individually (which they do not), **Claim 1 requires that the three recited elements all reside on a single database appliance**. In contrast, each figure (FIGs. 1-3) of *Nilsen* illustrates the configuration controllers 132 and 134 as **residing on nodes separate from the database servers**. Furthermore, col. 3, lines 24-28 of *Nilsen* specifically teaches that each element in the figures (including workstations, database servers, and configuration controllers 132 and 134) are on different computing machines. Therefore, *Nilsen teaches away from the recited database appliance* – a database appliance that comprises a database server and a configuration module. Because the combination of *Nilsen* and *Schleipfer* fail to teach or suggest this fundamental feature of Claim 1, Claim 1 is patentable over the cited art. Removal of the rejection with respect to Claim 1 is respectfully requested.

2. *Nilsen fails to disclose the recited “self-configuration module”*

It is further respectfully submitted that neither *Nilsen* nor *Schleipfer*, either individually or in combination, teach or suggest the recited self-configuration module of Claim 1. The portion of *Nilsen* cited to show this feature (col. 3, lines 60-65) merely states, *in toto*:

The controller assigns database servers based on the type of request, the load on each of the servers, and priority information. The controller 132 also maintains a record of information about the type of request, and the start and end times for that logging request.

In order to teach or suggest the recited self-configuration module, the cited portion of *Nilsen* would, at a minimum, need to discuss the concepts of **detecting an environment** and **configuring a database appliance** as claimed. However, the cited portion of *Nilsen* fails to discuss either of these concepts. The position of the Final Office Action may be that the configuration controller 132 **configures** one or more of the database servers of *Nilsen*. However, the database servers of *Nilsen* cannot qualify as a database appliance as claimed, because a database appliance as claimed requires (1) a database server, (2) a special purpose operating system, and (3) a self-configuration module. Thus, no portion of *Nilsen* discusses configuring a database appliance as claimed.

Further, configuration controller 132 merely “**manages the process through which data is logged** from a workstation 104 to database servers 120-124” (col. 3, lines 43-45). **Configuration controller 132 does not configure the database servers of *Nilsen*, let alone a**

database appliance as claimed. Instead, configuration controller 132 (1) provides database server access information to each requesting workstation and (2) receives status and availability reports from each database server so that configuration controller 132 can adjust future logging requests (Abstract).

As a result, the cited portion of *Nilsen* cannot possibly show the recited self-configuration module. If the Office Action disagrees, the Office is respectfully requested to particularly identify where these concepts are discussed in *Nilsen*.

Since *Schleipfer* and *Nilsen* individually do not show multiple features of Claim 1, it follows that the combination of *Schleipfer* and *Nilsen* also fails to disclose, teach, or suggest the multiple features of Claim 1. Consequently, it is respectfully submitted that Claim 1 is patentable over the cited art and is in condition for allowance.

B. CLAIM 16

Even if the cited art were to be properly combined, Claim 16 recites a combination of elements that are not disclosed, taught, or suggested by *Nilsen* or *Schleipfer*, either individually or in combination. Claim 16 recites the following combination of elements:

“A method for constructing a database appliance, comprising:
installing, on a computer readable medium accessible to one or more processors, a database server;
generating a set of components of a special purpose operating system **by removing one or more features of a general purpose operating system that are not required to provide a set of services required by the database server**; and
installing, on the computer readable medium, the special purpose operating system;
wherein the set of components include some, but not all, components of the general purpose operating system;
wherein configuration of the special purpose operating system is dictated based on the set of services.” (emphasis added).

It is respectfully submitted that at least the above-bolded portion of Claim 16 is not disclosed, taught, or suggested by *Nilsen* or *Schleipfer*, either individually or in combination.

In rejecting Claims 1 and 16, the Final Office Action **failed to even refer to the subject matter of the above-bolded portion** corresponding to removing features of a general purpose operating system. Thus, the Final Office Action failed to explain how all the features of Claim 16 are taught or suggested by the cited art.

Previously, Applicants conducted an interview with the Examiner on July 7, 2006. During the interview, the Applicants asked the Examiner where the above-bolded element is taught by any cited reference. In the informal telephone conversation conducted on August 1, 2006, the Examiner clarified his position that (a) that *Schleipfer* teaches a general purpose operating system and a special purpose operating system, (b) that *Nilsen* (at col. 3, lines 50-65) teaches how a database server can be configured, and therefore (c) that the combination of *Schleipfer* and *Nilsen* teach “the set of components of the special purpose operating system are generated by removing one or more features of the general purpose operating system that are not required to provide said set of services to the database server” as recited in Claim 16. However, although the Final Office Action asserted that *Nilsen* teaches an operating system, *Nilsen* fails to use the term “operating system,” let alone discuss the concept of a special purpose operating system.

Furthermore, in the informal telephone conversation, the Examiner cited col. 3, lines 50-65 of *Nilsen*, which states:

The central configuration controller 132, 134 **contains configuration data showing how many database servers are available and how they are to be accessed.** (For simplicity, all further references to the redundant controller will be to the assumed primary controller 132. If controller 132 fails, controller 134 would perform the indicated functions). The requestor workstation 104 generates a request 202 to begin logging data. **Controller 132 evaluates the request and responds 204** with the identification and access information for a primary database. 124 (DBSX) and a mirrored redundant database 126 (DBSY) to the workstation 104. **The controller assigns database servers** based on the type of request, the load on each of the servers, and priority information. **The controller 132 also maintains a record of information** about the type of request, and the start and end times for that logging request.

The Examiner emphasized the bolded portions above as teaching how a database server can be configured. However, as explained above, configuration controller 132 of *Nilsen* does not configure any computing entity, much less a database appliance as claimed, and much less a database appliance as claimed based upon the detected environment. Further, *Nilsen* lacks any teaching or suggestion of “**removing one or more features of a general purpose operating system that are not required to provide a set of services to the database server**” as Claim 16 requires. The database server of *Nilsen* can only be analogous to the “database server” of Claim 16 and not to either a general purpose operating system or a special purpose operating system as recited in Claim 16. Furthermore, even if the database server of *Nilsen*

can be equated with the general purpose or special purpose operating system of Claim 16, **the cited portion of *Nilsen* still fails to teach or suggest how the database server is configured by controller 132.** The actions performed by controller 132 (which are bolded above) include: (a) containing configuration data, (b) evaluating a request, (c) responding to a request, (d) assigning database servers, and (e) maintaining a record of information. **These actions have nothing to do with configuring a database server.** Therefore, it is respectfully submitted that the combination of *Schleipfer* and *Nilsen* fails to disclose, teach, or suggest the element of “removing one or more features of a general purpose operating system that are not required to provide a set of services required by the database server.”

In a previous Office Action, the Examiner asserted that *Schleipfer* teaches the above-bolded feature on page 124, right hand column, 4th paragraph and the abstract of *Schleipfer*. However, the Applicants respectfully submit that the abstract and the portion of *Schleipfer* cited on page 124 **lacks any teaching or suggestion of removing one or more features of a general purpose operating system.** The portion of page 124 of *Schleipfer* that may correspond to the 4th paragraph on the right hand column states:

Also, handling of some error cases is moved to the kernel. Examples are: The addressed server module is not loaded here, normal client calls an operation in the stopped state, or the server module provides no operation with the indicated opcode. In these cases, the kernel rejects the operation request, producing a response with an error code.

This communication interface makes programming easy: To the outside world, a server module looks like a programming language module exporting callable operations. Internally, there is no manager process, only the procedures that implement the operations. This interface also achieves the minimal number of context switches, one at operation invocation and one at operation return, leading to improved efficiency.

Instead of disclosing removing one or more features of a general purpose operating system, these portions merely describe (a) how error handling may be performed by the kernel of the special purpose operating system, rather than by the server modules of *Schleipfer* and (b) how the communication interface improves programmability and the required number of context switches. However, the responsibility for performing error handling and the benefits derived from *Schleipfer*'s ServOS kernel are not analogous to **removing one or more features of a general purpose operating system.**

Similarly, the Abstract of *Schleipfer* lacks any teaching or suggestion about how the set of components of a special-purpose operating system is generated. The Abstract states:

For distributed computer systems consisting of dedicated user and server machines we investigate the problem of the best operating system (OS) support to server modules loaded on server machines. This paper argues in favor of a special-purpose OS kernel and describes the ServOS system, which contains such a kernel. Special attention is given to those aspects that contrast the ServOS kernel against its main competitors, general-purpose distributed operating system (DOS) kernels. The differences are in two areas: First, the ServOS kernel takes simpler solutions where problems are easier to solve on server machines. Second, it gives the server modules a higher-level OS support.

Even though the Abstract of *Schleipfer* mentions a special purpose OS kernel and general-purpose DOS kernels, **there is no teaching or suggestion that a special purpose operating system may be generated by removing one or more features of a general purpose operating system.**

Nilsen also does not disclose, teach, or suggest the above-bolded features of Claim 16. The Office Action acknowledges that *Nilsen* “does not explicitly teach the special purpose operating system and the general purpose operating system as claimed” (see page 5). Consequently, since the Office Action acknowledges that *Nilsen* fails to teach or suggest a special purpose operating system, *Nilsen* cannot possibly show the above-bolded features of Claim 16.

Since *Schleipfer* and *Nilsen* individually do not show the above-bolded features of Claim 16, it follows that the combination of *Schleipfer* and *Nilsen* also fails to disclose, teach, or suggest the above-bolded features of Claim 16. Consequently, it is respectfully submitted that Claim 16 is patentable over the cited art and is in condition for allowance.

C. OBVIOUSNESS

The Office Action alleged that

[i]t would have been obvious to a person of ordinary skill in the art at the time of the invention to combine *Schleipfer* and *Nilsen* to increase the ease and efficiency of the configuration management task in a distributed computer systems [sic]. The ServOS kernel of *Schleipfer* takes simpler solutions where problems are easier to solve on server machines and it further gives the server modules a higher-level OS support (see page 121; *Schleipfer*).

The Applicants respectfully disagree. MPEP 706.02(j) states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some **suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, **to modify the reference or to combine** reference teachings. Second, there must be a **reasonable expectation of**

success. Finally, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure (emphasis added).

Thus, there are three requirements to establish a prima facie case of obviousness.

To the first requirement, there is no suggestion or motivation to modify either reference or to combine the reference teachings. *Schleipfer* discusses the benefits of a specialized server kernel, whereas *Nilsen* discusses a distributed database application for logging large volumes of data and balancing workload. A server kernel (as disclosed by *Schleipfer*) is an integral part of an operating system, whereas *Nilsen* fails to mention anything relating to an "operating system." There is no indication or evidence that the ServOS kernel of *Schleipfer* would improve the configuration controller of *Nilsen* in either the controller's (1) evaluation of a request for logging data or (2) determination of which database server to access. Thus, there is no suggestion or motivation to combine the ServOS kernel of *Schleipfer* with any portion of *Nilsen*. Therefore, it would not be obvious to combine *Schleipfer* and *Nilsen*.

To the third requirement, the references when combined do not teach or suggest all the claim limitations. As to Claim 1, it has been shown above that *Nilsen* fails to teach or suggest **configuring any computing entity**, much less "configuring the database appliance **based upon the detected environment**" as recited in Claim 1. As to Claim 16, it has also been shown above that neither *Nilsen* nor *Schleipfer* teaches or suggests **removing one or more features of any computing entity**, much less "removing one or more features of a general purpose operating system" as recited in Claim 16.

D. CLAIMS 2-11, 17-26, 31, AND 33

Claims 2-6, 8-11, 17-26, 31, and 33 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 2-6, 8-11, 17-26, 31, and 33 is therefore allowable for the reasons given above for the claim on which it depends.

In addition, each of Claims 2-6, 8-11, 17-26, 31, and 33 introduces one or more additional limitations that independently render it patentable. For example, Claim 17 features the element of "wherein the database server was generated from another database server by modifying the code of the other database server to optimize the code for execution on said database appliance." The portion of *Nilsen* cited to show this element (Col. 3, lines 60-65) merely states, *in toto*:

The controller assigns database servers based on the type of request, the load on each of the servers, and priority information. The controller 132 also maintains a record of information about the type of request, and the start and end times for that logging request.

The above-cited portion of *Nilsen* lacks any discussion of generating a database server; consequently, the above-cited portion of *Nilsen* cannot possibly show the features of Claim 17 asserted by the Office Action.

As another example, Claims 3 and 18 each feature the element of “wherein the hardware for said database appliance is selected and configured to optimize performance of one or more services to be performed by the database server.” The portion of *Nilsen* cited to show this element (Col. 3, lines 60-65) merely states, *in toto*:

The controller assigns database servers based on the type of request, the load on each of the servers, and priority information. The controller 132 also maintains a record of information about the type of request, and the start and end times for that logging request.

The above-cited portion of *Nilsen* lacks any discussion of selecting or configuring the hardware of a database appliance; consequently, the above-cited portion of *Nilsen* cannot possibly show the features of Claims 3 and 18 asserted by the Office Action.

III. CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Please charge any shortages or credit any overages to Deposit Account No. 50-1302.

Respectfully submitted,

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On January 3, 2007

by


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